Wisconsin Urban & Community Forests

A Quarterly Newsletter of the Wisconsin Department of Natural Resources, Forestry Division

Urban Tree Planting and Greenhouse Gas Reductions

by Greg McPherson, Ph.D., Director
Center for Urban Forest Research, USDA Forest Service

Several stories have appeared recently in popular news outlets suggesting that trees are not a solution in the fight against global warming. While these pop-media pieces represent the views of a few researchers, an overwhelming body of peer-reviewed research from forest scientists around the world point to the importance of forests in reducing carbon dioxide in our atmosphere and slowing the build-up of that greenhouse gas.

The pop-media pieces include a report from *Reuters,* "Trees Take on Greenhouse Gases at Super Bowl," January 30, 2007. Dr. Ken Caldeira, a Carnegie Institute climate scientist, was reported to say, "It's probably a nice thing to do, but planting trees is not a quantitative solution to the real problem." Dr. Philip Duffy of Lawrence Livermore National Laboratory said, "If you plant a tree [CO_2 reductions are] only temporary for the life of the tree. If you don't emit in the first place, then that permanently reduces CO_2." Dr. Caldeira had made similar arguments previously in an op-ed in the *New York Times,* "When Being Green Raises the Heat," January 16, 2007. A *New Scientist* article, "Location is Key for Trees to Fight Global Warming," December 15, 2006, reports results from a study by ecologist Dr. Govindasamy Bala of Lawrence Livermore National Laboratory. The model developed by Bala and colleagues indicates that, while trees planted in tropical regions have a clear net cooling effect, trees planted in mid-latitudes may absorb so much heat from the sun that they actually contribute to warming.

Because these reports fail to capture the complexity and the potential of the role that trees play in fighting global climate change, they have motivated rebuttals from the scientific community. I wrote this column to assure the public that trees do indeed reduce carbon dioxide in the air, thereby reducing the warming "greenhouse" effect of the gas, and to explain that urban trees in particular are valuable because they provide that benefit in more than one way.

First, as they grow, trees take carbon dioxide out of the air and transform it into roots, leaves, bark, flowers and wood. Over the lifetime of a tree, several tons of carbon dioxide are taken up (McPherson and Simpson 1999). Second, by providing shade and transpiring water, trees lower air temperature and therefore cut energy use, which reduces the production of carbon dioxide at the power plant. Two-thirds of the electricity produced in the United States is created by burning a fuel (coal, oil or natural gas) that produces carbon dioxide—on average, for every kilowatt hour of electricity created, about 1.39 lbs of carbon dioxide is released (eGRID 2002).

It is certainly true, as Dr. Duffy states, that not emitting carbon dioxide in the first place is a good strategy.

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Photo: Kirsten Held, WDNR

Trees do indeed reduce carbon dioxide in the air, thereby reducing the warming "greenhouse" effect of the gas, and urban trees in particular are valuable because they provide that benefit in more than one way.

Photo: Jeff Roe, WDNR

Toledo Division of Forestry recycles tree limbs and logs into mulch, including the ash trees cut as part of the city's EAB activities. WDNR Regional Forestry Staff Supervisor John Lubbers gets an up-close look at mulch that will eventually be sold for gardening and landscaping projects.

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Population: 16,150

Street Tree Population: 4600

Park Tree Population: 2500

Miles of Street: 92

Park Acreage: 223

Community Profile:

City of Onalaska

by Deena Murphy, Assistant Planner
City of Onalaska

City of Onalaska

Photo: Jason Gilman, City of Onalaska

Nestled in the scenic upper Mississippi River Basin directly north of La Crosse, Onalaska is a growing community amid spectacular natural resources. Beautiful bluffs and coulees define Onalaska's eastern limits, while the Black River, Lake Onalaska and the Minnesota bluffs frame the western edge of the city. Originally founded in 1851 by Thomas G. Rowe from New York, the city quickly became a flourishing lumber town, as hundreds of logs were sent into the city from forests up river. By 1865, three stream sawmills were in operation, with two more under construction. The name "Onalaska" came from the poem "The Pleasures of Hope" by Thomas Campbell, published in 1799. Rowe was fond of the line, "The wolf's howl from Oonalaska's shore," and decided to use the name, only with one "o."

Since 1960, the city of Onalaska has grown steadily, averaging a 31 percent growth rate per decade. With this growth came a rising concern in Onalaska, as well as in the rest of La Crosse County, that unplanned and uncoordinated growth could gradually erode the region's quality of life. In 1994 and 2005, the city adopted a comprehensive plan allowing for planned development, which is essential to preserve Onalaska's outstanding natural landscape. As part of this plan, residential districts are clustered on compact lots with common open space, outside of environmentally sensitive areas. Bluffs are preserved from development and used for low-impact recreational activities.

Although many developers and builders recognize the benefit of preserving trees, including increased property value and environmental benefits, some subdivisions were initially clear-cut. This, along with new storm water regulations and rising energy costs, prompted the city to draft a tree preservation ordinance. The ordinance is required on plats, commercial sites, and certified survey maps over 5 acres in size. Prior to construction, a tree preservation plan must be submitted, reviewed and approved showing the location of specimen trees, which are based on species and

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Send your inquiries, address changes, or story ideas to Laura Wyatt, Laura.Wyatt@Wisconsin.gov (608-267-0568), or Dick Rideout, Richard.Rideout@Wisconsin.gov (608-267-0843).

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Articles, news items, photos and ideas are welcome.

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This newsletter is available in alternative format upon request and can also be downloaded in PDF format from our Web site: http://dnr.wi.gov/forestry/UF/

For breaking UF news, anecdotes, announcements and networking opportunities, sign up for The Urban Forestry Insider, DNR's twice-monthly e-newsletter. Archives are at http://dnr.wi.gov/forestry/UF/resources/InsiderArchive.html

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EAB Lessons Learned in Michigan and Ohio

by Laura Wyatt, Urban Forestry Communications Specialist and Richard Rideout, State Urban Forestry Coordinator DNR Division of Forestry

The Wisconsin DNR Urban Forestry staff and two supervisors recently spent two days visiting communities in southern Michigan and northern Ohio to learn firsthand how communities are responding to emerald ash borer infestation.

Michigan DNR and Ohio DNR and Extension staff arranged for the group to meet with representatives of eight communities, each employing an assortment of management options to address staggering tree mortality and critical wood utilization issues.

Several recurrent themes emerged as communities shared lessons they have learned.

Define roles. Many players are involved when EAB comes to town. It is critical to agree on specific roles for federal, state and local government staff and for business, nonprofits, volunteers, etc., to ensure all resources are engaged and to avoid overlap, miscommunication or turf battles. Ordinances or policies defining authority and responsibility should be in place before EAB hits.

Start planning early. Unfortunately most communities, even in Michigan and Ohio, are in denial until an infestation hits locally. When EAB is finally detected, populations often surge and management shifts quickly into crisis mode. Tree removals become a major workload, quickly overcoming resources and staff capabilities. Planning before this happens is critical.

Seeing is believing. Support from elected officials for this early planning is essential, but very tough to get. The more you engage elected officials through presentations, site visits and bus trips the more successful you'll be.

Inventories, even if just of the ash population, are critical to early planning efforts and forecasting budgets for labor, equipment, staff training and restoration. This was universally stressed by every community we talked to.

Visual surveys should start at the tops of trees. While tree girdling is currently the best method available for systematic detection surveys, an infestation may still go undetected. Ohio and Michigan communities are finding infestations first in the tops of mid-sized trees before any symptoms are visible from the ground. So, in addition to the state's detection surveys, to assure that we find EAB early, it is important for arborists to be looking for the characteristic D-shaped hole and other signs of EAB during their routine tree-top work in ash.

Wood disposal must be addressed. Additional planning is needed for wood utilization. Profit is unlikely, but utilization can minimize disposal issues and eliminate or offset disposal costs.

Funding will be needed, period. Communities will need to find funds to cover the huge expense of equipment, removals, disposal and replanting. One community set up a trust fund for donations. Another deferred the purchase of a $1 million fire engine for five years to pay for the cost of removing ash. EAB will be a public safety issue that trumps even fire protection! The loss of tree canopy will also increase other expenses. One community found that their water bills spiked upward 33% due to increased watering of previously shaded lawns and gardens now baking in the sun. Storm water runoff and electricity use for air conditioning could also increase.

Waiting and doing nothing will be more expensive. It costs two to three times more to remove a completely dead ash tree versus a declining but live tree. Waiting until EAB hits before you make a plan to remove, dispose of and replant your ash will leave you with no contractors available, no markets for your waste wood and no trees to buy and plant. Communities that planned ahead have funds to replant. Those that waited to react do not.

The group also visited a Michigan community that is treating public ash trees with systemic insecticides and a cooperative ash research study conducted by The Ohio State University and the City of Toledo, located on a city boulevard. Results of these studies and further conclusions drawn from our trip will be shared in future issues.

To get your community started planning for EAB, visit our EAB Toolkit Web site at http://dnr.wi.gov/forestry/uf/eab/ or contact your regional urban forestry coordinator (see page 16). To stay current on EAB, subscribe to the *Wisconsin Urban Forestry Insider* e-newsletter at http://dnr.wi.gov/forestry/uf/ or visit the Wisconsin EAB Web portal at http://emeraldashborer.wi.gov/.

Photo: Jeff Roe, WDNR

Northeast Regional Urban Forestry Coordinator Tracy Salisbury (left) and Southeast Regional Urban Forestry Coordinator Kim Sebastian take a few moments to look at some of the EAB-infested ash trees recently cut down by City of Toledo Division of Forestry staff.

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Community Tree Profile:

American Yellowwood (Cladrastis kentukea formerly *Cladrastis lutea)*

by Laura G. Jull, Associate Professor & Extension Specialist
Dept. of Horticulture, University of Wisconsin–Madison

Photo: Edward Hasselkus, Professor Emeritus, UW–Madison

American yellowwood

Photo: Laura Jull, Associate Professor, UW–Madison

American yellowwood flowers

Native To: Mountainous regions of the southeastern US with scattered locations in south-central US up into southern Illinois

Mature Height: 30–50' or more

Spread: 40–50' wide

Form: Vase-shaped when young, becoming rounded; low branching; medium texture; shallow root system

Growth Rate: Moderate

Foliage: Alternate, pinnately compound leaves with 7–11 elliptic to obovate leaflets that are either opposite or alternating on the rachis. Leaflets have entire margins, acute tips and the terminal leaflet is the largest. Leaves are bright green, 8–12" long with a swollen, hollow petiole base that sits on top of the lateral bud (subpetiolar buds).

Buds and Stems: Alternate, naked (no bud scales), pubescent, cone-shaped, subpetiolar buds (leaf scar completely surrounds the lateral bud) with no terminal bud. Stems are glabrous, gray-brown, sometimes glaucous with a slight smell of raw peas or beans when bruised. Buds have a zigzag arrangement up the stem. Stems have horseshoe-shaped leaf scars.

Fall Color: Bright yellow to gold, showy

Flowers: Showy, terminal, pendulous panicles (clusters) with white, 8- to14" -long, fragrant flowers in late spring to early summer. Individual flowers are pea-type and 1" long. Flowers attract bees and a heavy crop of flowers are produced every other year.

Fruit: Brown, flat, 3- to 4"-long pod (legume) in autumn. Fruit does not attract wildlife and is non-edible.

Bark: Smooth, dark gray, resembling an elephant's hide; remains smooth even into old age; thin bark is easily damaged by mechanical injury. Heartwood is a beautiful, bright yellow color.

Site Requirements: Full sun to partial shade; prefers a fertile, rich soil but is adaptable; pH adaptable; not invasive. Requires a moist, well-drained soil; intolerant to wet soils, drought, heavy clay, compaction and road salt. Difficult to transplant; plant in spring.

Hardiness Zone: 4b

Insect & Disease Problems: Susceptible to verticillium wilt, canker and dieback if stressed.

Suggested Applications: American yellowwood makes a nice specimen shade tree for lawns and parks. It is not suited for use as a street tree due to its intolerance to drought, poor soils and road salt, and its propensity for included bark formation. The flowers are very beautiful in late May to mid June and the smooth, dark gray bark is showy in winter.

Limitations: Difficult to transplant, hence best to dig and plant in spring. Intolerant to urban conditions and casts dense shade, hence is hard to grow grass beneath. Very prone to included bark formation and narrow crotch angles; "bleeds" sap profusely after pruning in spring, however this is only cosmetic and will not harm the tree. Requires training and corrective pruning when young to improve branch spacing. Shallow root system. Branches can break in storms due to structural problems.

Comments: American yellowwood's attractive flowers, fall color and bark provide for multi-seasonal interest in the landscape. The broad, rounded canopy and dense foliage provide for cool shade in hot summers. The bright yellow heartwood is used for making bowls, gunstocks and paneling. The heartwood and roots can also be used to make a yellow dye.

Common Cultivars or Selections:

'Perkins Pink': light pink flowers

'Rosea': light, pinkish-white flowers that gradually fade to white

'Sweet Shade': larger leaves and flowers; rare in cultivation

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Preston Cole—Newest Member of the Natural Resources Board

Wisconsin Department of Natural Resources

Gov. Jim Doyle announced the appointment of Preston Cole to the Natural Resources Board on Tuesday, August 28, 2007.

"Preston Cole has worked for many years to ensure that our state's natural resources are preserved for generations to come," said Doyle. "As someone who has dedicated their career to protecting our forests and waterways, I know Preston will serve the state well on the DNR board."

The NRB sets policy for the DNR and holds public meetings around the state to gather input on natural resource and environmental policies. The seven members of the board serve staggered six-year terms. At least three of the members must be from the northern part of the state and at least three must be from the southern part. Cole replaces Howard D. Poulson on the board for southern Wisconsin.

"I am extremely pleased with my appointment to the DNR board from Governor Doyle," said Cole. "The Wisconsin DNR board provides policy oversight for one of the nation's most progressive natural resource organizations. To that end, I am humbled and excited to engage in conversations that continue that long tradition."

Cole earned his Bachelor of Science degree in forest management from the University of Missouri–Columbia. Upon graduating, he became the first African-American forester to be employed by the Missouri Department of Conservation. There, Cole was responsible for private land management, state forest and urban forestry management requests.

Currently, Cole is the environmental services superintendent for the City of Milwaukee Department of Public Works Operation Division. Among Cole's other professional roles are:

- past chair of the board of trustees for the National Arbor Day Foundation, which has a membership of over one million individuals and organizations
- director for the Wisconsin Center District, which oversees management of Milwaukee's Midwest Express Center, the Cellular One Arena and the Auditorium
- chair of the Operations Committee of the Milwaukee Metropolitan Sewerage District, where he directs policy for Wisconsin's largest wastewater treatment plant

In 2005, Mayor Tom Barrett recognized Cole as a steering committee member on the Milwaukee Green Team.

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Preston Cole

What Damaged This Tree?

Photo: Olivia Withum, WDNR

Turn to page 15 to find out. . .

Tree City & Tree Line USA Application Process

by Ian Brown, Urban Forestry Assessment Specialist
DNR Division of Forestry

Tree City USA and Tree Line USA application deadlines are right around the corner. The National Arbor Day Foundation sends Tree Line applications to electric utility companies and DNR urban forestry coordinators send Tree City applications to Wisconsin municipalities in the fall. Additional requests may be placed at the National Arbor Day Foundation Web site, www.arborday.org/programs. These programs recognize municipalities and utilities for promoting the integration of trees and management into Wisconsin communities and utility service.

To be recognized as a Tree City USA a community must meet four requirements. It must have: 1) a designated tree board or forestry department, 2) an annual forestry program expenditure of at least $2 per capita, 3) a tree ordinance, and 4) observe and proclaim Arbor Day.

To be recognized as a Tree Line USA, a utility must meet three requirements. It must: 1) provide quality tree care that follows national tree care and protection standards, 2) provide annual worker training related to the tree care and protection standards, and 3) sponsor ongoing tree planting and public education.

All completed applications should be sent to your regional urban forestry coordinator (see page 16 of this newsletter). The deadline for Tree Line USA applications is November 1; Tree City applications are due December 31, 2007.

TREE CITY USA

TREE LINE USA

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Urban Tree Health Matters:

Hickory Dieback and Mortality in Wisconsin

by Kyoko Scanlon, Forest Pathologist
DNR Division of Forestry

Though hickory may not be the most popular street or yard tree in Wisconsin, hickory trees are seen in urban landscapes in residential areas and parks as well as wooded areas. The most common hickory species in Wisconsin are shagbark hickory (*Carya ovata)* and bitternut hickory (*Carya cordiformis*). Shagbark hickory is known for shaggy gray strips of bark and is found in southern Wisconsin. The range of bitternut hickory extends further north to part of northern Wisconsin.

Photo: Kyoko Scanlon, WDNR

Hickory mortality

Dieback and mortality on hickory have recently been reported in southern, eastern and west central Wisconsin. This problem has been observed on both bitternut and shagbark hickory. Many beautiful mature hickory trees in yards, parks and campgrounds have been killed and removed. Leaves of affected trees wilt and the entire tree dies, often within a year or two. Affected trees produce epicormic branches; however these epicormic branches also wilt and die. Hickory mortality has also been reported in neighboring states such as Minnesota, Iowa and Missouri. Similar mortality was observed in Wisconsin in the 1960s and late 1980s. Historically, mortality of hickory was attributed to infestations by the hickory bark beetle (*Scolytus quadrispinosus*). In the late 1980s and early 1990s, the mortality of hickory was investigated, and studies indicated that the mortality was associated with the hickory bark beetle and possibly the fungus *Ceratocystis* spp. Recently the USDA Forest Service resumed a hickory mortality study to further investigate the cause(s) of this problem.

The hickory bark beetle, native to Wisconsin, is regarded as the most destructive insect of hickory in the eastern United States. Larvae of the hickory bark beetle attack and kill hickory trees by mining the phloem. Although the insect usually attacks overmature, weak or recently killed trees, apparently healthy trees of all ages are also infested during outbreaks. Infested trees show wilted leaves, twig and branch dieback, and often die. Feeding galleries are centipede-shaped and etched on the interface of sapwood. Adults are short, stout, dark brown to black beetles, and are 4–5 mm in length. The insect overwinters as a larva. Adult exit holes are round and about 3mm in diameter.

Current management practice for this insect is to remove trees harboring overwintering larvae before the following spring. Infested wood should be burned, chipped or debarked to prevent adults from emerging. If practical, insecticide applications on trunks and large branches of high-value trees in July can be effective to protect from infestation by this insect.

Recently two species of the fungal genus Ceratocystis (*C. carya* and *C. smalleyi*) have been isolated from sunken bark cankers and discolored wood associated with beetle attacks. The genus Ceratocystis includes some tree disease pathogens, such as oak wilt (*Ceratocystis fagacearum*) and sapstreak disease (*Ceratocystis coerulescens*) of sugar maple. It is suspected that *C. smalleyi* may play a role in hickory mortality associated with the hickory bark beetle. At this point, little is known about the relative role of the fungus *Ceratocystis* spp. on hickory mortality and its distribution in Wisconsin. In the summer of 2006, the USDA Forest Service conducted a survey to detect the presence of *Ceratocystis* spp. on declining hickory trees in Wisconsin and some neighboring states. Isolates of *Ceratocystis* spp. were obtained from wood samples collected from six of the eight sites chosen for the study in Wisconsin. Other fungi were also isolated from the samples. In the summer of 2007, a more detailed survey with sample collection was conducted in Wisconsin and neighboring states by Forest Service staff in cooperation with state agencies. The results of the study should shed some light on the mystery of hickory mortality.

Urban Forest Insect Pests:

Rose Chafers

by Linda Williams, Forest Health Specialist
DNR Northeast Region

Rose chafers *(Macrodactylus subspinosus)* are a scarab beetle found in areas of Wisconsin with sandy soils. The adult beetles appear in the early part of June and feed on a wide variety of plants during their three- to four-week life span. They are approximately one-half inch long, light tan or yellowish in color with reddish brown heads, and have orange or dark brown slender legs. Adult beetles can fly long distances to find plants and flowers to feed on. Adult beetles feed on roses, grapes, peonies, fruit trees and many other trees, shrubs and flowering plants. They prefer feeding on flowers more than leaves but will happily feed on leaves when no flowers are available. Leaves are often left skeletonized, with the insects eating everything except the veins and small amounts of tissue. Rose chafers will also feed on fruit.

Adults feed for three or four weeks, then lay eggs in the soil and die shortly afterwards. Eggs hatch in two to three weeks. The larvae are C-shaped and commonly called white grubs. They feed on the roots of grasses and weeds and don't usually do any economic damage. The larvae spend the winter in the soil, moving deeper as the frost penetrates. Mature larvae are about ¾ inch long and will pupate the following spring and emerge as adults in June. There is one generation per year.

Control can be difficult at times. Since the adults are capable of flight it is quite common to hear people say that they sprayed the beetles on their plants and a few days later there were beetles covering their plants again. Insecticidal sprays, labeled for use on the plants you're applying them to, do work against rose chafers, but you may have to reapply them several times throughout the period when adults are present. You could also try commercial rose chafer traps to lure the beetles to the trap before they feed on your plants. These traps are similar to the traps for Japanese beetles (another scarab beetle) but are designed for rose chafers. Traps should be placed 30 feet away from the plants you're trying to protect. If you don't like using insecticides you could cover your plants with netting such as cheesecloth to keep the beetles away from the leaves, or you could simply pick off the offending insects and squish them underfoot or place them in a can of soapy water.

Rose chafers tend to be more common in years following droughty conditions and 2007 seems to be a good year for insects. Homeowners who noticed rose chafers this year should expect larger populations in 2008.

Photo: Linda Williams, WDNR

Rose chafer adults will feed on flowers, leaves and some fruit.

Arbor Day Poster Contest

The National Arbor Day Foundation

by Laura Wyatt, Communication Specialist
DNR Division of Forestry

The Department of Natural Resources Forestry Division is sponsoring the sixteenth annual Arbor Day Poster Contest for all state 5th graders. The contest is part of a national competition sponsored by the National Arbor Day Foundation and is the culmination of Arbor Day lesson plans that are provided to each 5th grade teacher. Over 2200 students participated in the 2007 contest.

The 2008 theme is
"Trees are Terrific . . . inside and out!"

Awards are given to the top three posters in the state and the first place poster moves on to national competition. Wisconsin's first-, second- and third-place winners will be presented with plaques and savings bonds of $100, $75 and $50 respectively and their teachers will receive two scholarships. The first is for a Learning, Experience & Activities in Forestry (LEAF) teacher's workshop, the second is a scholarship to receive professional development training in the international award-winning Project Learning Tree program for educators in Wisconsin. Teachers will also be honored with books at an award ceremony in Madison in spring 2008. The Wisconsin Arborist Association donates the student awards. LEAF, Wisconsin's K–12 Forestry Education program, and the Wisconsin Department of Natural Resources' Project Learning Tree program will each provide the scholarships. The three student winners will also receive a landscape tree to be planted at their school or in their community, donated by the Wisconsin Nursery Association. The top 12 posters will be featured in the DNR's 2009 Arbor Day/Earth Day calendar and will appear on the Environmental Education for Kids Web site, *EEK!*

Contest and lesson materials, addressed to "5th grade teacher," will be sent to all public and private elementary schools in October. Additional packets are available for other groups including home school associations. Entry deadline is February 19, 2008.

If you are a parent of a fifth grade student or know a fifth grade teacher, let them know about this fun way to teach students about trees! If you would like to assist in promoting this opportunity for students in your community, contact Laura Wyatt at 608-267-0568 or laura.wyatt@wisconsin.gov.

Welcome New Urban Forestry Staff

Please extend a warm welcome to these new members of the WDNR urban forestry working group, Candice Sovinski, Urban Forestry Grant Manager, and Kathy Gonzalez, South Central Region Urban Forestry Assistant.

Photo: Ian Brown, WDNR

Candice Sovinski

Candice Sovinski

Since working at the WDNR I've been fortunate to gain a wide variety of grant management experience. Most recently I worked in the Community Financial Assistance Bureau where I managed the recycling grant programs. I worked with municipalities as well as the private sector, nonprofits, research institutions and tribes. It was always rewarding to hear about the results of their efforts and contributions to Wisconsin and beyond. I've also worked in Endangered Resources as a planning and protection specialist where I reviewed projects and worked with the Natural Heritage Inventory (NHI).

In 2001 I moved to Madison and joined the WDNR after working in the private sector in business management and administration. For a number of years I was a road warrior where I worked with manufacturing representatives and foreign distributors. I also enjoyed the opportunity to live and work in England for seven years. I received a Bachelor of Science degree in Business Administration from the University of Wisconsin.

Besides grants management I've worked on biennial budget planning, work planning, audits, program reporting and a list of program objectives. The move to forestry has caused me to get my feet wet once again and I'm pleased to work with so many dedicated professionals. I've been able to meet some of the forestry folks and I'm excited to learn how I can assist you in your work. For those of you that I may not see, if you have ideas about how I can be of service or be of support, feel free to send an e-mail to Candice.Sovinski@Wisconsin.gov or call me at 608-267-3775. I look forward to being of service and contributing where I can.

Photo: Jeff Roe, WDNR

Kathy Gonzalez

Kathy Gonzalez

I have always been interested in people's relationship to the land. I received a bachelor's degree in Natural Resource Management from the University of Texas–Austin and a master's degree in Community Forestry from the University of Wisconsin–Madison. I was fortunate to spend most of my college years leading ecotourism trips for youth to Latin America, always working with community-based projects. In graduate school, I joined UW–Cooperative Extension to support forest landowner conferences across the northern Wisconsin region. After graduating, I spent two years in Puerto Rico, serving as a technical advisor for the USDA Forest Service, International Institute of Tropical Forestry. Most recently, I served as the interim natural areas coordinator at Friends of Troy Gardens, on the north side of Madison.

I look forward to assisting Jeff Roe with community forestry projects in the South Central Region.

Coming Events

October 25, 2007 – *Wisconsin Arborist Association Fall Seminar*, Wilderness Resort, Wisconsin Dells, WI. Contact Cory Gritzmacher, cagritz@netwurx.net.

November 6–7, 2007 – *Certified Treecare Safety Professional Workshop and Certification Exam,* Hartford, CT. Contact TCIA, 800-733-2622 or visit www.TCIA.org and click on CTSP.

November 8–10, 2007 – *TCI Expo*, Connecticut Convention Center, Hartford, CT. Contact Tree Care Industry Association, www.natlarb.com/.

November 14–15, 2007 – *Partners in Community Forestry National Conference*, Baltimore, MD. Contact National Arbor Day Foundation, www.arborday.org/shopping/conferences/.

November 28–December 1, 2007 – *American Society of Consulting Arborists Annual Conference*, Loews Vanderbilt Hotel, Nashville, TN. Contact www.asca-consultants.org/conferences.html or 301-947-0483.

December 5, 2007 – *Wisconsin Urban Forestry Council quarterly meeting*, Madison, WI. Contact Laura Wyatt, 608-267-0568 or laura.wyatt@wi.gov.

Greetings from the New Southeast Regional Urban Forestry Coordinator!

by Al Zelaya, Urban Forestry Coordinator
DNR Southeast Region

I am a firm believer in the theory that we grow when we disrupt our comfort zone. Now, that doesn't mean that there won't be a few setbacks or bumps along the road. We all know that accepting a challenging assignment often comes with inherent risks and required sacrifices. I have often found myself hanging out on a limb (both literally and figuratively) wondering how I got myself into this mess! However, the potential to learn and make a positive difference is often too compelling to pass up an opportunity.

As the new Southeast Region Urban Forestry Coordinator serving Waukesha, Washington, Ozaukee and Sheboygan counties, I look forward to meeting many new people and facing new challenges as an advocate for Wisconsin's community forests. During my career as forestry crew chief for the Lake County Forest Preserves in Northern Illinois, I managed community trees on diverse landscapes including parks, golf courses, natural areas, river corridors and roadways. I faced many of the same challenges that community foresters are dealing with today: shrinking budgets, new development pressure, political roadblocks and invasive pests and diseases, to name a few. I learned quickly that there is strength in numbers and developed creative partnerships with other municipal foresters, volunteer groups, commercial arborists, local media and allied trade organizations. Many of my past accomplishments can be attributed to the support of others.

Photo: WDNR

Al Zelaya

Therefore, I also believe in the power of the acronym **TEAM** ➔ **T**ogether **E**veryone **A**chieves **M**ore. I am incredibly fortunate be working as part of two teams—here in the Southeast Region with Kim Sebastian, and statewide with a group of talented and dedicated DNR urban foresters with a fantastic support network. I also look forward to working with the Wisconsin Arborist Association, the Wisconsin Urban Forestry Council, nonprofit organizations and all who are dedicated to advancing urban and community forestry in Wisconsin.

January 9–11, 2008 – ***Minnesota Green Expo***, Minneapolis Convention Center, Minneapolis, MN. Contact MN Turf & Grounds Foundation, www.mtgf.org.

January 16–18, 2008 – ***Mid-Am Horticultural Trade Show***, Lakeside Center at McCormick Place, Chicago, IL. Contact www.midam.org/.

February 3–5, 2008 – ***Annual Wisconsin DNR Urban Forestry Conference and Wisconsin Arborist Association Conference and Trade Show***, Middleton, WI. Contact Cory Gritzmacher, cagritz@netwurx.net.

February 9, 2008 – ***Southeast WI Woodland Owner Conference,*** Country Springs Hotel & Conference Center, Waukesha, WI. Contact DNR forester Randy Cooper, Randal.Cooper@Wisconsin.gov or 262-884-2390.

February 19–22, 2008 – ***ASCA Consulting Academy***, Sheraton Suites San Diego, San Diego, CA. Contact www.asca-consultants.org/conferences.html or 301-947-0483.

February 24–29, 2008 – ***2008 Municipal Forester Institute***, T-BAR-M Conference Center, New Braunfels, TX. Registration is limited. Contact www.urban-forestry.com.

If there is a meeting, conference, workshop or other event you would like listed here, please contact Dick Rideout at 608-267-0843 with the information.

City of Onalaska, *continued from page 2*

size, and landmark trees, which are based on size and historical significance. The city requires that no more than 80 percent of the specimen trees be removed on developable land below 30 percent slope. However, the city reserves the right to require additional preservation based on the characteristics of each site.

The city's urban forestry program was founded by former street commissioner Paul Johnson in the 1980s. Paul was instrumental in creating the canopy cover that we have today by choosing streets for mass plantings that he would plant and prune himself with help from city staff. In later years, the responsibilities were expanded to the street department for removals, pruning and brush pick-up. The city's urban forestry program was not officially defined until 1999 when Onalaska became a Tree City USA. A tree board was formed and consists of members of the plan commission. The responsibility of bidding stock and planting, community outreach, tree inspections/complaints, and urban forestry grant writing, to name a few, lies with the planning department. In 2000, the city was awarded an urban forestry grant to complete a street and park tree inventory and management plan. All city-owned trees were inventoried and their locations plotted using GPS (global positioning system). The resulting plan prioritized removal and maintenance needs along with budget details for each action. The city will be updating its inventory in 2008 as much development has occurred, resulting in the addition of approximately 1000 new trees. Locations of open space on boulevards and within parks will also be identified to assist with planning future large-scale plantings. With the help of another urban forestry grant, the city created a five-year pruning plan for all city trees. The city was divided into five management sections where pruning of one section per year is completed during the winter months. Street personnel attend pruning courses to learn proper techniques for both young stock and mature trees.

Photo: Brad Friske, Operation Homefront Photographer

Onalaska Arbor Day celebration where 5 trees, one for each branch of military service, were planted by past and present military members.

New street trees within Onalaska are requested and planted each year for residents who live in homes older than 10 years while tree planting in newer areas is typically left up to the developer or homeowner. Annually, about 30 trees are planted at various locations within the city depending upon requests. In 2006–07, two major road projects were completed and 82 trees were planted in May 2007 on the widened boulevards created by these projects. Since the city's tree population consists of 45% maple and 35% ash, species diversity was an important factor when planning the planting projects. Honeylocust, linden, hackberry, elm and crabapple now line these major thoroughfares.

Oak wilt trenching has been completed within city parks and has been quite successful. Trenching, especially bordering residential areas, was funded in part though an urban forestry grant. Over 150 oak trees have succumbed to wilt in recent years so additional trenching is planned for 2008. The park and recreation department also prunes all park trees and contracts to plant about 30 trees per year.

Onalaska's annual Arbor Day celebration has involved high school and elementary students, Boy Scout groups and all five branches of military service. In 2006, the city, in cooperation with Operation Homefront, a nonprofit group that provides assistance to soldiers and their families, planted five trees for each branch of military service at Wellington Greens Park. Soldiers from several branches were on hand to witness the dedication of a plaque that resides at the park and to assist with the planting. Onalaska American Legion members also brought flags representing each branch of service. In 2007, sixty local 5th graders planted five trees in a recently dedicated park. After the planting was completed, the students completed a clean-up project of the nearby wooded areas. Armed with trash bags and gloves, the students enthusiastically collected over 30 bags of trash!

The City of Onalaska is currently working on an emerald ash borer readiness plan as well as educational flyers that will be mailed to each household this fall/winter. Training will be held for streets and park department personnel to identify possible signs or symptoms of this pest. Since there is no forestry department, the planning, park and recreation, and streets departments attend training ranging from pruning to safety and are committed to maintaining and growing a healthy urban forest.

Illustration: Jim McEvoy

Recognizing Outstanding Urban Forestry Projects

by Laura Wyatt, Communications Specialist
DNR Division of Forestry

Are you aware of an individual, organization, business, community or tribe which has developed an outstanding urban forestry program or project? Let them know how much you appreciate their work and that they have made a difference by nominating them for a Wisconsin Urban Forestry Council Award! Each year the council provides award recognition to outstanding projects and programs which further urban forestry in Wisconsin. The awards are announced at the annual Wisconsin Urban Forestry Conference and will be presented locally in communities. The four award categories are:

Distinguished Service — recognizes an individual for their outstanding contributions to urban forestry in Wisconsin

Project Partnership — recognizes outstanding projects that utilize partnerships as a means of providing services or benefits to the urban forest

Elected Official — recognizes an elected official at the state, county or local level of government who has made an outstanding recent contribution to urban forestry in Wisconsin; this could be a mayor, alderman, county executive, state legislator, etc., who has gone "above and beyond" in their support

Innovations in Urban Forestry — recognizes a community, individual, association or organization exhibiting outstanding innovations in the development or enhancement of an urban forestry project or program; this award recognizes the creativity, commitment and success of urban forestry efforts

The nomination process can be initiated in one of two ways, by a *preliminary nomination* or a *complete nomination.*

A ***preliminary nomination*** can be submitted by anyone who would like to recognize outstanding efforts of an individual, organization or group which has resulted in a positive impact on Wisconsin community and urban forests. Preliminary nominations can be submitted anytime throughout the year and should include:

- name(s), address(es) and phone number(s) of the individual/organization being nominated
- award category
- project name
- your name and contact information

Once a preliminary nomination is received, the urban forestry council will contact the nominated individual/organization and announce that they have been recognized for their urban forestry efforts and request they submit a complete nomination form. The award cycle closes December 15, so be sure to submit preliminary nominations in time to allow submission of a complete nomination by the nominee.

OR

A ***complete nomination*** can be directly submitted by **December 15** and include:

- name(s), address(es) and phone number(s) of the individual/organization being nominated
- award category
- project name, if applicable
- name(s), address (es) and phone number(s) of persons to be contacted regarding the nomination
- description of the merits of the nominee or the achievements of the project or partnership; include the goals/objectives of the project and detail the outcome or impact the action had on the community. Why do you believe this nominee is deserving of the award? Feel free to attach any supporting documents (news clippings, photos, letters, etc.) that strengthen the nomination.

Both types of nominations should be sent to the Wisconsin Urban Forestry Council, PO Box 7921, Madison, WI 53707 or can be e-mailed to **Laura.Wyatt@Wisconsin.gov**. For additional information, visit the Wisconsin Urban Forestry Council Web site at **http://dnr.wi.gov/forestry/UF/council/awards.html**.

Urban Tree Planting and Grenhouse Gas Reductions, *continued from page 1*

Lowering summertime temperatures by planting trees in cities is one way to reduce energy use and thereby reduce carbon dioxide emissions. And planting trees is an immediate solution. Even if we were able to switch immediately to fuel sources that do not emit carbon dioxide, the levels in the air will remain high for decades or even centuries because of the long "lifetime" of carbon dioxide. Urban forestry doesn't require the development of new technologies or massive investment in alternative energy sources. Planting a tree to shade a building is something all of us can do now.

To address the other claims: *Are carbon dioxide and other greenhouse gas reductions from tree planting temporary?* In a sense, yes, greenhouse gas reductions are temporary if trees are removed and not replaced. To achieve long-term reductions, a population of trees must remain stable as a whole. This requires a diverse mix of species and ages so that the overall tree canopy cover remains intact, even as individual trees die and are replaced. Although sequestration rates will level off once an urban tree planting project reaches maturity, the reduced emissions due to energy savings will continue to accrue annually. Dead trees can be converted to wood products or used as bioenergy, further delaying, reducing or avoiding greenhouse gas emissions.

Dr. Caldeira suggests in the Super Bowl article that tree planting projects are "risky." They may appear more risky than reducing emissions by building solar or wind farms because the tree-related climate benefits are less easy to document and because the 50- to 200-year life span of a tree seems less permanent than a new power plant. This uncertainty can be offset by legally binding instruments such as contracts, ordinances and easements that guarantee tree canopy in perpetuity. And, of course, trees and alternative energy sources are not mutually exclusive—both have a place in reducing carbon dioxide emissions.

Will urban tree planting in mid-latitude cities result in zero or even negative climate benefits? Dr. Bala's study in the *New Scientist* article describes two main ways trees lower temperature: they remove carbon dioxide from the air, reducing the greenhouse effect, and they release water vapor, which increases cloudiness and helps cool the earth's surface. But because tree leaves are dark, they also absorb sunlight, which increases the temperature near the earth's surface. The difference between trees in tropical latitudes and those in mid-latitudes has to do with the difference in how much sunlight forests reflect compared to other possible surfaces such as grass or crops. "Shiny" surfaces reflect more sunlight back into the atmosphere than forest vegetation, resulting in less heat trapped near the earth's surface. Large-scale tree planting projects that replace highly reflective surfaces with forests will result in more heat trapped near the ground during winter.

The startling conclusion that tree planting increases global warming by absorbing more heat, especially in temperate latitudes, is based on modeling of the reflectance (albedo) of forest canopies that are darker than snow, grass or crops and absorb more heat. The models rely on various assumptions, such as wide-scale afforestation, i.e., broad plantings of trees on grass and croplands. While more precise measurements may be warranted, the necessary conclusion—*i.e., the earth would be cooler if the forests were cut down*—defies common sense and is neither realistic nor ecologically desirable.

In cities, the climate effects of incremental darkening from increased tree canopy cover is even less relevant. Asphalt, concrete and roof surfaces account for 50 to 70 percent of urban areas, with the remaining area covered by trees, grass and bare soil. The difference in the albedos of the different urban surfaces is small. Vegetation canopies have albedos of 0.15 to 0.30, the albedo of asphalt is 0.10, that of concrete and buildings is 0.10 to 0.35 and the overall albedo in low density residential areas is 0.20 (Taha et al. 1988). In cities, increasing urban tree canopy cover does not appreciably alter surface reflectance or increase heat trapping.

At the same time, as described above, a number of field and modeling experiments have found that urban trees reduce summertime air temperatures through evapotranspiration and direct shading (Akbari and Taha 1992, Rosenfeld et al. 1998, McPherson and Simpson 2003). This reduces energy consumption and the emissions related to energy generation. Recognizing the climate benefits of trees, the California Climate Action Team Report (2006) recommended planting five million trees in cities to reduce 3.5 million metric tons of carbon dioxide. Our recent study found that by planting one million trees the Million Trees LA program will reduce atmospheric carbon dioxide by about 1 million tons over the next 35 years, equivalent to taking 7000 cars off the road each year (McPherson et al. 2007). Since 1990, Trees Forever, an Iowa-based nonprofit organization, has planted trees for energy savings and atmospheric carbon diox-

Lowering summertime temperatures by planting trees in cities is one way to reduce energy use and thereby reduce carbon dioxide emissions.

Photo: Chris Welch, WDNR

ide reduction with utility sponsorships (McPherson et al. 2006). Over one million trees have been planted in 400 communities with the help of 120,000 volunteers. These trees are estimated to offset carbon dioxide emissions by 50,000 tons annually.

Do tree-planting projects give people a "feel-good illusion that they are slowing global warming?" The climate benefits of trees in mid-latitude cities are not an illusion, although they certainly feel good. Reductions in atmospheric carbon dioxide are achieved directly through sequestration and indirectly through emission reductions. Still, planting trees in cities should not be touted as a panacea to global warming. It is one of many complementary bridging strategies, and it is one that can be implemented immediately. Moreover, tree planting projects provide myriad other social, environmental and economic benefits that make communities better places to live. Of course, putting the right tree in the right place remains critical to optimizing these benefits and minimizing conflicts with other aspects of the urban infrastructure.

The solutions to the problem of climate change are as complicated as the mechanisms of global warming itself. It is far too early and we have too little information to have decided to only invest in strategies that reduce fossil fuel emissions. Certainly we must transform the way we produce and consume energy. Doing so will require the brightest minds of science, the staunchest will of politicians, and a great deal of time, effort and money.

In the meantime, we can all plant a tree.

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Photo: Rick Wojciak, WDNR

The climate benefits of trees in mid-latitude cities are not an illusion. Tree planting projects provide a myriad of benefits that make communities better places to live.

For breaking urban forestry news and announcements—

…subscribe to The Urban Forestry Insider at:
http://dnr.wi.gov/forestry/UF/resources/InsiderArchive.html#subscribe

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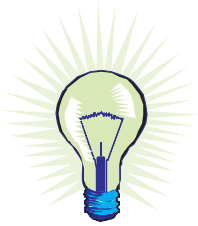


Does your community or organization have an idea, project or information that may be beneficial to others? Please let your regional urban forestry coordinator know. We will print as many of these as we can. If you see ideas you like here, give the contact person a call. They may be able to help you in your urban forestry efforts.

The Idea Exchange…

compiled by Olivia Witthun, Urban Forestry Assistant DNR Northeast Region

Bike Tour of City's Heritage Trees

Vancouver, Washington, has a Heritage Tree program. Each special heritage tree is marked by a small black plaque; however, it is not very noticeable to passers-by. City foresters wanted to better promote the program and bring more awareness to their community's forest by touring the heritage trees. The trees were too difficult to see while driving and it would have been too long a distance for a walking tour, so they decided to do a bicycle tour of the heritage trees. About twenty riders showed up for the first bike tour of these notable trees. The city's urban forestry outreach coordinator led the tour and discussed the heritage trees, the urban forest and its benefits. Due to the success of the bike tour, they are planning on making this an annual event. *Info:* http://actrees.org/site/stories/bike_tour_celebrates_vancouvers_top_trees_con.php.

Three Legged Partnership

New York State Urban and Community Forestry Council's partnership with John Browne High School in Queens and the National Tree Trust has resulted in a grow-out nursery on the high school campus. Each year the school nursery furnishes hundreds of trees to other schools, parks and community gardens for Arbor Day planting projects. This exemplary partnership began in 2000 as a solution to make NTT tree seedlings suitable for urban environments. NTT provides the tree seedlings. The council, as the nonprofit sponsor, provides money for tools and equipment through its regular USDA Forest Service contract and from NTT grants. An additional grant enabled the council to produce a three-lesson curriculum guide about planting and caring for trees. Money is also made available for special field trips. One year, the students visited the New York State Department of Environmental Conservation's Saratoga tree nursery to learn more about running a nursery. *Info: Wolf, Nancy A. and Perry, Steve. 2006. "The Three-Legged Partnership."* ***Taking Root 18:1.***

Research Notes:

The Potential of Urban Tree Plantings to be Cost Effective in Carbon Credit Markets

by Melissa R. McHale[1], E. Gregory McPherson[2], Ingrid C. Burke[1]

As the concern over global warming continues to increase, new methods and incentives are being considered to reduce the amount of atmospheric carbon dioxide concentrations. One method which was adopted as a result of the Kyoto Protocol involves trading carbon credits. Carbon credits can be earned and traded. Therefore, an industry that determines that it is not practical to reduce their own CO_2 emissions can purchase carbon credits from industries that have already reduced their emissions below a required level. Although the US has not signed on to the treaty requiring nations to reduce greenhouse gas emissions to 1990 levels, many multinational US companies are impacted by its implementation worldwide.

Researchers conducted this study to determine if urban tree planting projects can be a cost effective investment in the carbon trading market and to identify which variables have the greatest influence on cost effectiveness. Urban trees directly and indirectly reduce atmospheric CO_2 by sequestering carbon dioxide in their biomass and reducing energy consumption by their climate altering effects. However, if a tree planting program is to qualify as a viable carbon credit project, it must be marketable, quantifiable and cost effective to compete with other options. Regardless of the ability to trade on the market, community foresters and local governments could use this research to develop more effective planting projects and minimize emissions at the community level.

Researchers used model sensitivity analysis to predict total monetary costs, total carbon storage and reduced energy-related carbon emissions projected over a 40-year period. Four different tree planting projects were compared in four Colorado cities—Denver, Whittier, Grand Junction and Fort Collins—using model input values for carbon assimilation, decomposition and tree maintenance rates. The study determined that none of the Colorado tree planting projects were competitive at the current carbon trading market range of $3 to $13. The research did conclude that tree planting cost effectiveness had a direct correlation to management decisions and regional location. Although the shortened northern growing season favored southern tree planting projects, management decisions such as strategic tree placement, species selection and higher wood utilization options after tree mortality can make urban tree planting projects more competitive in the carbon trading market. Furthermore, investors may be willing to pay more per credit for tree planting projects because of the added benefits associated with urban trees.

[1] Graduate Degree Program in Ecology, Department of Forest Rangeland and Watershed Stewardship, Colorado State University, Fort Collins, CO

[2] USDA Forest Service, Pacific Southwest Research Station, Center for Urban Forest Research, Davis, CA

Reference: *Urban Forestry & Urban Greening,* Vol.6, No.1, Pages 49–60. February 2007.

Urban Forestry Resources:

UFind – The Urban Forestry Index

15

compiled from UFind and Forest Service Web pages
by Cindy Casey, Urban Forestry Coordinator
DNR West Central Region

You Seek?

Do you wish you could track down a few good information resources to help with your current forestry project?

Do you wonder if someone else has already produced a leaflet, poster or CD like the one you're planning to do?

Significant funding, time and effort have gone into developing urban forestry information resources of all kinds, in all parts of the country, by a variety of groups and agencies. Technically accurate, well produced products related to urban forestry and arboriculture are in high demand, yet can be hard to find. The vast majority are underutilized and in some cases duplicated because people are largely unaware of what has already been created.

UFind!

Help has arrived! The Urban Forestry Index is a comprehensive database of urban forestry and arboriculture publications and other media in all types of formats from a wide variety of organizations. It consolidates urban forestry information resources into a single database that can be searched by topic, author, title, description or keyword. UFind is a cooperative effort of the USDA Forest Service, University of Minnesota and TreeLink and is housed on the Web at www.urbanforestryindex.net/.

Types of Materials

The database currently contains over 900 records with many more soon to be added. Materials indexed in the database include:

- manuals, 3-ring binders, factsheets
- books and booklets
- PowerPoint presentations
- Web sites
- posters
- CDs, DVDs and videos
- press releases and PSAs
- toolkits
- model programs and projects
- reports
- newsletter articles
- peer-reviewed journal articles

Search Features

UFind can be searched to find a publication with a specific title, list all products by a given author or about a certain subject, or searched for all resources of one media type (like posters). A combination of these categories can be searched to provide, for example, a list of all videos on tree preservation. Searches can be refined to select popular materials, scientific research documents or both.

Search Results

Search results are displayed with links for additional information and, when available, to the downloadable version. Most of the indexed resources are available for download, loan, purchase or are free of charge. Publishers are identified to help users inquire about obtaining copies. Many of the items are part of the University of Minnesota's Forestry Library and can be checked out through a document delivery system or any library's inter-library loan system.

continued from page 5

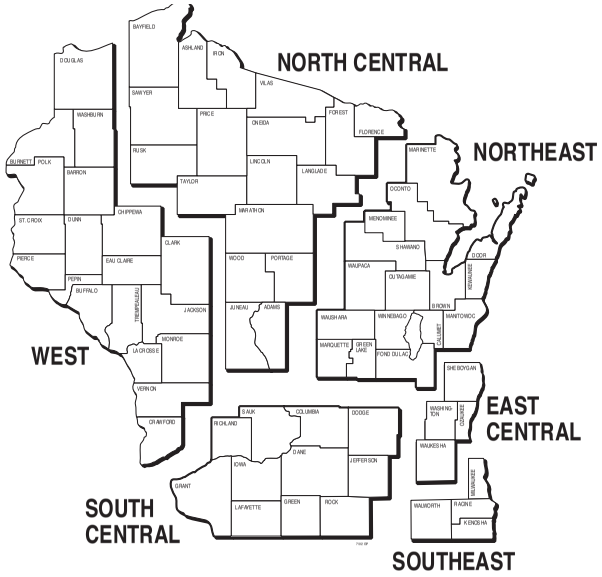
What Damaged This Tree?

Photo: Olivia Withum, WDNR

Answer: This tree is at risk of damage from too much of a good thing. When properly applied, composted wood chip mulch really is a tree's best friend. It helps young plants get established by stimulating root development. It keeps roots cool and moist in the summer and insulated in the winter. It also reduces competition from grass and weeds. Wood chip mulch benefits both newly planted and established trees by improving soil structure and fertility. The wider the area mulched, the better for the tree.

But wider does not mean deeper! In these photos, mulch is piled much too deeply over the roots and is placed against the stem, volcano style. Deep mulch can lead to moisture stress and root desiccation when rainfall and supplemental irrigation can't penetrate to the root zone. And instead of a cool, moist environment in the root zone where it's desirable, this mulch application has created a cool, moist environment along the trunk surface, where it increases the risk of trunk decay and rodent damage. For best results, cover the soil with a 2–4" layer of mulch and brush it several inches away from the tree trunk; then get your camera out for those back-to-school pictures under a properly mulched tree!

Wisconsin DNR Urban and Community Forestry Contacts



World Wide Web Site: http://dnr.wi.gov/forestry/uf/

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